

CLAIMS:

1.           A compressor bleed valve actuator comprising a movable piston in a piston casing, the piston being movable to a predetermined axial position set by a relief port which is selectively openable for allowing incoming pressurized fluid to flow out of said piston casing as said piston uncovers said relief port.
2.           A compressor bleed valve actuator as defined in claim 1, wherein said piston casing has first and second opposed end portions, and wherein said relief port is provided at a location intermediate said first and second opposed end portions.
3.           A compressor bleed valve actuator as defined in claim 1, wherein the piston is movable from one side of said relief port to an opposed side thereof when said relief port is closed.
4.           A compressor bleed valve actuator as defined in claim 1, wherein a control port is provided at a first end portion of said piston casing, said control port being connected to a first valve operable for allowing pressurized fluid to flow into and out of the piston casing.
5.           A compressor bleed valve actuator as defined in claim 4, wherein said control port and said relief port are in fluid flow communication via said piston casing when said piston uncovers said relief port.
6.           A compressor bleed valve actuator as defined in claim 4, wherein said piston has a first face adapted to be exposed to fluid pressure, and wherein a first stop is provided in said casing to stop said piston in a first limit position in which said first face of said piston is spaced axially from said control port.
7.           A compressor bleed valve actuator as defined in claim 6, wherein said piston is biased against said first stop.

8. A compressor bleed valve actuator as defined in claim 7, wherein said piston has a second face opposed to said first face thereof, and wherein a biasing member acts on said second face of said piston to bias said first face against said first stop.

9. A compressor bleed valve actuator as defined in claim 8, wherein said piston is displaceable under fluid pressure to a second limit position in which said second face thereof is pushed against a second stop provided within said piston casing.

10. A compressor bleed valve as defined in claim 1, wherein stoppers are provided on either sides of the relief port to physically set the limit positions of the piston.

11. A system for controlling compressor surge in a gas turbine engine comprising: at least one bleed valve; and at least one pressurized fluid actuator coupled to the bleed valve to operate the bleed valve to control compressor surge, said actuator mounted for movement in a casing between first, second and third positions, the second position being intermediate the first and third positions, wherein the actuator is moved between said positions upon the supply of a pressurized fluid to an operative portion of the actuator, the actuator having at least one selectively openable opening at a location corresponding to the second position for selectively permitting pressurized fluid to exit the operative portion of the actuator and thereby permit the actuator to remain in said second position.

12. A system as defined in claim 11, wherein the actuator is a piston and the casing is a cylinder.

13. A system as defined in claim 11, wherein a portion of the actuator obstructs the opening when the actuator is in the first position..

14. A system as defined in claim 11, further comprising a biasing apparatus adapted to bias the actuator towards the first position, wherein the biasing apparatus is adapted to exert a biasing force on the actuator in a direct opposite to a force exerted by pressurized fluid in said operative portion, and wherein the biasing force is less than the pressurized fluid force..

15. A system as defined in claim 12, wherein the first position is defined by a second selectively openable opening on the actuator.

16. A system as defined in claim 15, wherein the openable openings are in fluid flow communication via the operative portion when the actuator is in the second position.

17. In a gas turbine engine comprising an engine part movable between discrete positions, an actuator coupled to said engine part to actuate the engine part, said actuator comprising a piston mounted for reciprocal movement within a piston casing, said piston being movable from a first end position to a second end position when a pressurized fluid is supplied to a chamber through a first opening defined in said casing, said chamber being defined at least partially by said piston and said piston casing, the actuator including a second opening adapted to remove pressurized fluid from said chamber, wherein said piston is selectively retainable in an intermediate position by bleeding pressurized fluid from said chamber through the second opening.

18. An actuator as defined in claim 17, wherein the position of the second opening corresponds to the intermediate position.

19. An actuator as defined in claim 17 further comprises plurality of axially spaced-apart second openings along the piston stroke to permit selective

retention of the piston in a plurality of spaced-apart intermediate positions corresponding to the locations of the spaced-apart second openings.

20. A compressor bleed valve actuator comprising a piston slidable in a piston casing between first, second and third positions, said second position being intermediate said first and third positions, a first port provided in said piston casing for allowing a pressurized fluid to be selectively supplied into said piston casing in order to displace said piston from said first position to said third position, and a selectively openable outlet port provided in said piston casing at a location corresponding to said second position, whereby when said piston uncovers said outlet port and said outlet port is opened, the pressurized fluid flowing into said piston casing via said first port is permitted to flow out of said piston casing through said outlet port, thereby causing said piston to remain in said second position thereof.

21. A compressor bleed valve actuator as defined in claim 20, wherein said first port and said outlet port are in fluid flow communication via said piston casing when said piston uncovers said outlet port.

22. A compressor bleed valve actuator as defined in claim 20, wherein the pressurized fluid is fuel.

23. A method of setting an intermediate position of a compressor surge bleed control actuator, the actuator including a fluidly movable piston received in a casing for sliding movement between first, second and third positions, the second position being intermediate the first and third positions, the method comprising the steps of: biasing said piston towards said first position; directing a pressurized fluid into said casing via a first port to displace said piston away from said first position; and opening a relief port to permit pressurized fluid to flow out of said casing at said second position once said piston uncovers said relief port.